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1888

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EMERY GRINDING MACHINERY.

MESSRS. L. STERNE AND CO., Limited, of the Crown Iron Works, Glasgow, show an interesting collection of machine tools, some of which we illustrate in our present issue. Fig. 1, above, is an automatic surfacing machine in which the abrading tool is an emery wheel. This machine is especially designed for surfacing machine parts, which have usually to be planed and afterwards filed and scraped. It does the work much more rapidly than planing, and no filing is necessary, and very little scraping is required. The general design of the machine is shown in the illustration. The table has an automatic longitudinal motion and can be set to any stroke within the limits of the machine, the feed up to the wheel being either by hand or automatic. The former is generally preferred as the motion necessary to take a considerable cut is very slight, and it is more under the control of the workman. It will be seen by the illustration that four narrow wheels spaced apart are used in place of one wide one. In this way the work is kept cool, while the number of cutting edges being increased permits of quicker work being done. In order to enable the whole surface of the work to be ground and also to keep the wheels true and of equal diameter, the wheel spindle has a longitudinal motion imparted to it by an ingenious wormwheel and link arrangement at the end. This is adjustable so that the extent of the movement can be varied as required. The bearings and sliding surfaces are well protected from emery dust. This machine is designed to work equally well with hardened steel, chilled cast iron, soft steel, wrought iron, soft cast iron, or brass. It is well adapted for grinding slide bars, slide valves, and similar parts.

Another machine shown by this firm is the automatic wheel tooth cleaner which we illustrate by Fig. 2. The general design of this machine will be easily gathered from the engraving. It will clean out the teeth of spurwheels, or straight toothed wormwheels. The emery wheel is shaped on the periphery to the space between the teeth of the wheel to be cleaned, and is carried on a vertical slide which has a reciprocating motion imparted by means of a connecting-rod and disc, actuated by a worm and wheel from the countershaft at the base of the machine. The wheel spindle is driven by a belt at each end, and is made in two parts and coupled at the centre, so that the emery wheel can be removed and another inserted without having to interfere with the bearings or take out the spindle. A swinging frame at each side, carrying a couple of guide pulleys, takes up the slack of the driving belts, and the whole machine works with great smoothness and regularity. The wheel being cleaned is moved round one tooth each time when the emery disc has cleared the wheel at the bottom of its stroke. Each space, therefore, is traversed twice by the disc. The feed motion can be adjusted for any diameter, pitch, and width of wheel within the limits of the machine. A spring lever automatically holds the wheel firmly while the emery disc is doing the work. In this way the teeth are equally spaced and are each ground to the same shape and at the same distance from the centre. About 2000 teeth can be operated upon in one hour.